

**University of Guelph**

**School of Computer Science, Winter 2018**

**CIS\*4410 Trends in Distributed Systems, W (3-1) [0.50]**

**Prerequisite(s):** [CIS\\*3210](#), ([CIS\\*3750](#) or [CIS\\*3760](#))

**Instructor:** Xining Li, MCLN 211, X56548, [xli@cis.uoguelph.ca](mailto:xli@cis.uoguelph.ca)

**Lecture Hours and Room:** Mon/Wed/Fri: 9:30 – 10:20 PM, MCKN 231

**Office Hours:** Monday: 01:00PM–03:00PM. An appointment beyond office hours can be made through emails.

**Calendar Description:** A course that examines the technical issues surrounding modern and future distributed commercial enterprises. Special attention is given to new communication modes, high volume, data-intensive systems, distributed transactions and security mechanisms.

**Course Topics:**

- Characterization of Distributed System: Definition and Examples of Distributed Systems, and Resource Sharing.

- System Model: Architectural and Fundamental Model.

- Networking and Internetworking: Types of Network and Network Principle.

- Protocol Architecture: TCP/IP Protocol Architecture, Open Systems Interconnections (OS)

- Inter-process Communication: Client-Server Communication and Group Communication.

- Distributed Objects and Remote Invocation: Remote Method Invocation (RMI), Events and Notifications, Distributed Objects and CORBA.

- Distributed File Systems: Peer to Peer Systems

- Time and Global States: Synchronizing Physical Clocks, Logical Clocks, Global States and Consistent Cuts, The snapshot algorithm, The Distributed Debugging.

- Coordination and Agreement: Distribute Mutual Exclusion, Elections, Multicast Communication.

- Transactions and Concurrency Control.

- Security: Overview of Security Techniques and Digital Signature.

- Introduction to Web Services.

**Course Web:** <http://moodle.socs.uoguelph.ca>

**Evaluation:**

In determining the overall grade of the course, the following weights will be used:

Assignments:

- Assignment 1: 15%
- Assignment 2: 15%
- Assignment 3: 20%

Mini Assignments: 10%

Project: 40%

### **Special Note**

- All cases of academic misconduct are handled by the Dean, in conjunction with the School Director. Successive infractions of misconduct affirmed by this process could have consequences as serious as expulsion from the University. For details please see related pages in the University of Guelph Undergraduate Calendar 2017-2018.
- Requests for academic consideration because of illness or of a compassionate nature must be made in writing and accompanied by certification whenever possible.

### **Standard Statements**

The following are standard statements for inclusion on all course outlines (adapted with permission from the College of Arts). Some departments or colleges may also elect to post this information on a common website and link to such sites in the course outline. However, it is strongly recommended that statements on academic misconduct and links to the academic misconduct section of the academic calendars are included on all course outlines.

#### **E-mail Communication**

As per university regulations, all students are required to check their <mail.uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students.

#### **When You Cannot Meet a Course Requirement**

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. [See the undergraduate calendar for information on regulations and procedures for Academic Consideration.](#)

#### **Drop Date**

Courses that are one semester long must be dropped by the end of the fortieth class day; two-semester courses must be dropped by the last day of the add period in the second semester. The regulations and procedures for [Dropping Courses](#) are available in the Undergraduate Calendar.

### Copies of out-of-class assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

### Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required, however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to book their exams at least 7 days in advance, and not later than the 40th Class Day. More information: [www.uoguelph.ca/sas](http://www.uoguelph.ca/sas)

### Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it.

Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

[The Academic Misconduct Policy is detailed in the Undergraduate Calendar.](#)

### Recording of Materials

Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

## Resources

The [Academic Calendars](#) are the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs.